



## PATENT ABSTRACTS OF JAPAN

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## (54) PROGRAM RESERVING METHOD

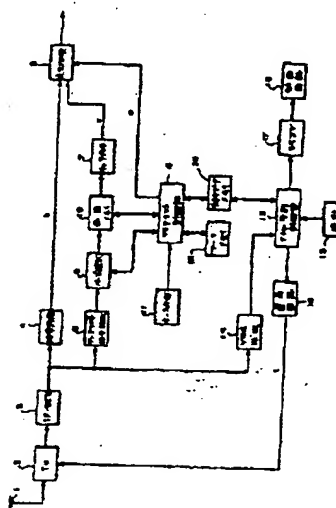
## (57) Abstract:

**PURPOSE:** To confirm a program reservation data corresponding to an item of a selected program list as a character by allowing a selected program to correspond with its program reservation data and displaying the result as a character on one and same screen.

**CONSTITUTION:** A teletext signal multiplexed during the vertical fly-back period in a video signal is extracted by a teletext signal extraction circuit 8 and fed to a page selection circuit 9 and when a page of a teletext pattern is selected by depressing a program reservation display key, the data of the pattern of the selected page is fetched in a pattern memory 10. Then a control section 6 reads and analyzes the pattern data to extract a video recording reservation data, writes it in a work memory 12 and writes it in the pattern memory 10 as the character data to display the content of the program reservation data on one and same screen to-

gether with the program list. Thus, the program reservation data corresponding to the item of the program list is confirmed on the screen as the character.

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### Specification

#### 1. TITLE OF THE INVENTION PROGRAM TIMER RECORDING METHOD

#### 2. SCOPE OF CLAIM

(1) A program timer recording method to be applied to a video tape recorder which takes in a program listing of scheduled broadcast programs included in a teletext signal superimposed during a vertical blanking interval of a television signal and program timer recording data corresponding to each item of the program listing, comprising the step of:

displaying the timer recording data corresponding to the selected item with characters on the same display screen as the display screen for the program listing when one of the items of the program listing displayed on the display screen is selected.

#### 3. DETAILED DESCRIPTION OF THE INVENTION

##### (A) Application Field in the Industry

The present invention relates to a video tape recorder (VTR) capable of receiving a teletext broadcast, and particularly to a program timer recording method of a video tape recorder capable of taking in plural types of character data designating broadcast start times, program titles, etc. of scheduled broadcast programs included in

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the teletext data.

(B) Prior Art

Conventionally, when a timer recording is performed in a VTR, it was necessary to input items such as a recording start time, an end time, a channel Number, etc. one-by-one by key operations. On this account, an operation procedure became complex due to increase of the number of key operations for timer recording, and it became such situation that the desired broadcast program could not be recorded by erroneous input. By the way, recently, a certain broadcast station is transmitting information (program listing) such as the broadcast start time, the program title, etc. of the scheduled broadcast program as a part of a teletext broadcast, and a method for recording by using the program listing is proposed in West Germany Laid-Open Patent Specification No. 333,508, for example.

In this case, the program listing in which the broadcast start time, and the program title of the scheduled broadcast program transmitted from the broadcast station are written is displayed on a screen (100) of a display, and a user performs a program timer recording by specifying a desired timer recording program with a cursor (200) and by extracting necessary data for the program timer recording, thereby, it is possible to reduce the number of key operations necessary for the program timer recording. Further, it is able to perform the timer recording while watching titles of the programs by displaying the program listing on the screen, so that it is able to reduce erroneous inputs.

(C) Problems to be solved by the Invention

Incidentally, a display status in the receiver side of the program listing transmitted from a broadcast station is displayed with a simplified form such as [12:00 News], and [12:15 Music Show] as shown in Fig. 4, or with a format unique to the broadcast station. For example, it is able for a user to know that the News starting from 12:00 is to be programmed when a timer recording key is depressed while specifying the [12:00 News] by a cursor as shown in the figure, but it was not impossible for the user to know further detailed information such as program data (timer recording date, a channel, a recording start time and end time), and it was very inconvenient.

Then, the present invention is to solve the above defects.

(D) Means for solving the Problems

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A program timer recording method of the present invention is applied to a video tape recorder which takes in a program listing of scheduled broadcast programs included in a teletext signal superimposed during a vertical blanking interval of a television signal and program timer recording data corresponding to each item of the program listing in order to solve the above problems, comprises the step of displaying the timer recording data corresponding to the selected item with characters on the same display screen as the display screen for the program listing when one of the items of the program listing displayed on the display screen is selected.

(E) Operation

According to the above-mentioned means, it is able to confirm the timer recording data corresponding to the item of the program listing selected by a cursor on the display screen as characters.

(F) Embodiments

Hereinafter, one embodiment of the present invention is described with reference to Fig. 1 to Fig. 3.

Fig. 1 shows a schematic block diagram of a VTR to which the present invention is implemented wherein a broadcast signal captured by an antenna (1) is received and selected by a tuner (2) is signal-processed by a video signal processing circuit (4) through a video intermediate frequency and detection circuit (IF-DET) (3), and is supplied to a display switch circuit (5). The display switch circuit (5) is configured to select either a video signal (b) from the video signal processing circuit (4) or a character signal (c) from a character generator (7) by a switch signal from a teletext control section (6) configured with a microcomputer, and to output.

On the contrary, the teletext signal superimposed during a vertical blanking interval of the video signal obtained from the IF-DET (3) is extracted by a teletext signal extraction circuit (8), and is supplied to a page selection circuit (9). This page selection circuit (9) extracts only data of the page number specified by the teletext control section (6), and supplies to a screen image memory (10). The screen image memory (10) writes in the screen image data of the page number specified by the teletext control section (6) in accordance with a control signal from the teletext control section (6). The data written in the above-mentioned screen image memory (10) is converted into character signals by the character generator (7) after being read out in accordance with a control signal from the teletext control section (6).

As described above, the teletext control section (6) not only performs the

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display control for both the television screen and the teletext screen by sending command to both the page selection circuit (9) and the display switch circuit (5) as described above, but is able to display arbitral characters by directly writing data in the screen image memory (10).

A reference code (11) is a key input section, and the teletext control section (6) performs processing corresponding to the key operation when the user operates the key input section (11). Further, a work memory (12) is used when the teletext control section (6) performs the program timer recording processing.

With regard to the program timer recording by the teletext control section (6), it displays on the display a screen image of the predetermined page number of the teletext, and when a program timer recording key is depressed after selecting a desired program by moving the cursor, it writes the program timer recording data corresponding to the selected program in a program timer recording data memory (19).

The program timer recording data written in the program timer recording data memory (19) is read out by a timer recording control section (13) configured with a microcomputer. A VPS (Video Program Systems) signal superimposed during the vertical blanking interval of the video signal obtained from the IF-DET (3) is supplied to the timer recording control section (13) after extracted at a VPS signal extraction circuit (14), and further, a time data from a clock circuit (15) is supplied to the timer recording control section (13). The above-mentioned timer recording control section (13) compares the above-mentioned time data or VPS signal if the VPS signal exists with the above-mentioned timer recording data, and tunes to the predetermined TV program with a tuner (2) by controlling a tuning circuit (16) and further sends a recording command to a system controller (17) when both data accord to each other. The system controller (17) controls a recording circuit (18) to start the recording operation when receiving the recording command. Then, at the time of the recording end time, the program timer recording data written in the program timer recording data memory (19) is to be erased when the recording ends.

Then, the operation of the teletext control section (6) in the program timer recording transmitted by the teletext broadcast is described in more detail with reference to Fig. 2 and Fig. 3 in addition to Fig. 1.

Firstly, when a user selects a page of the teletext screen image by depressing a program timer recording display key (not shown), the data of the screen image in the selected page is taken in the screen image memory (10), and the teletext control section (6) performs the judgment whether the screen image data of the predetermined page is completely taken in or not (step 1). When the uptake of the screen image data into the

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screen image memory (10) is completed, the control section (6) extracts a timer recording data [Pos (channel position), Date (date), Start (recording start time), Stop (recording end time)] by taking in and analyzing the above-mentioned screen image data (step 2), and writes in the work memory (12) (step 3).

When the timer recording data corresponding to the selected page screen image is written in the work memory (12), the control section (6) displays the content of the program timer recording data (Fig. 2 (B)) together with the program listing (Fig. 2 (A)) on the same screen (100) on which the corresponding program listing by writing in the screen image memory (10) the first program timer recording data written in the work memory (12) as the character data. At this time, in the program listing (Fig. 2 (A)), it displays the cursor (20) at the position of the item of the program listing corresponding to the displayed program timer recording data, and thereby, notifies to a user the currently selected program corresponding to the program timer recording data (step 5).

At this time, the teletext control section (6) awaits a next key input from the key input section (11) (step 6).

Next, if it is judged in step 7 that the key inputted is the key for cursor move, the program timer recording data corresponding to the item ([12:15 Music Show], for example) of the program specified by the move of the cursor (20) is read out from the work memory (12), and is written into the screen image memory (10) as character data, then not only the program timer recording data is displayed on a screen area (B) as shown in Fig. 2 (step 8), but also in step 9, the cursor (20) is displayed at a position of the above-mentioned item ([12:15 Music Show]) corresponding to the program timer recording data displayed in the screen area (B).

If it is judged that the key input is not a key for the cursor move in step 7, the judgment whether it is the input by the timer programming execution key is performed in step 10, and if it is judged that it is the key input by the timer programming execution key, then the timer recording data of the item in the specified program by the cursor (20), that is the timer recording data displayed at area (B) of the screen is written in (step ) the program timer recording data memory (19), then the processing ends.

The operation after the program timer recording data is written in the program timer recording data memory (19) is as described above, and the program timer recording operation by the teletext broadcast is performed in accordance with the above described successive operations.

#### (G) Effect of the Invention

According to the present invention, at every time when an item of the program

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listing transmitted with the teletext broadcast, there is an advantage where the timer recording data corresponding to the item is confirmed with characters on the screen image.

#### 4. BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram of a video tape recorder to which the present invention is implemented.

Fig. 2 is a chart for showing a teletext screen displayed thereby.

Fig. 3 is a chart for showing a flowchart for describing an operation of a teletext control section.

Fig. 4 is a chart for showing a teletext screen displayed by a conventional video tape recorder.

(6) ... teletext control section, (10) ... screen image memory, (11) ... key input section, (19) ... timer recording data memory, (100) ... screen

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## TRANSLATION FOR DRAWINGS

Fig. 1

- 1: ANTENNA
- 2: TUNER
- 3: IF-DET
- 4: VIDEO PROCESSING CIRCUIT
- 5: DISPLAY SWITCH CIRCUIT
- 6: TELETEXT CONTROL SECTION
- 7: CHARACTER GENERATOR
- 8: TELETEXT SIGNAL EXTRACTION CIRCUIT
- 9: PAGE SELECTION CIRCUIT
- 10: SCREEN MEMORY
- 11: KEY INPUT SECTION
- 12: WORK MEMORY
- 13: TIMER RECORDING CONTROL SECTION
- 14: VDS EXTRACTION CIRCUIT
- 15: CLOCK
- 16: TUNING CIRCUIT
- 17: SYSTEM CONTROLLER
- 18: RECORDING CIRCUIT
- 19: TIMER RECORDING DATA MEMORY

Fig. 3

START

- 1: FINISH CAPTURING OF SCREEN IMAGE DATA?
- 2: READ SCREEN IMAGE DATA
- 3: EXTRACT TIMER RECORDING DATA AND WRITE IN WORK MEMORY
- 4: DISPLAY CONTENT OF FIRST TIMER RECORDING DATA
- 5: DISPLAY CURSOR ON A POSITION OF CORRESPONDING SCREEN IMAGE
- 6: KEY INPUT?
- 7: CURSOR MOVE KEY?
- 8: DISPLAY CONTENT OF NEXT TMER RECORDING DATA
- 9: DISPLAY CURSOR AT POSITION CORRESPONDING SCREEN IMAGE
- 10: TIMER PROGRAMING EXECUTION KEY?
- 11: WRITE TMER RECORDING DATA IN TMER RECORDING DATA MEMORY

END



ほできるという勢風がある。

#### 4. 図面の題名を説明

第1図は本発明を実施したビデオテープレコーダのブロック図、第2図はそれによって表示されるテレビキスト画面を示す図、第3図はテレビキスト明細書の動作説明のためのフローチャートを示す図、第4図は従来のビデオテープレコーダによって表示されるテレビキスト画面を示す図である。

{6}…テレビキスト制作部、{10}…読解メモ  
リ、{11}…キー入力部、{19}…予約データメモ  
リ、{100}…画面。

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